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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,072	03/17/2004	Satoru Sugawara	2271/71535	5176

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EXAMINER

NGUYEN, HOANG V

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 05/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/803,072

Applicant(s)

SUGAWARA, SATORU

Examiner

Hoang V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 4-12 and 15-21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/19/04 & 3/17/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Olson (US 4,074,268).

Regarding claim 1, Olson (Figures 1 and 6) discloses a variable-directivity antenna comprising an omnidirectional antenna element 10; a transmission line 29 connected to the antenna element; an electric field adjusting structure 34-37 provided in a boundary region between the antenna element and the transmission line and configured to change electric field distribution of the transmission line to a desired direction (col 4 line 57 to col 5 line 12).

Regarding claim 2, as applied to claim 1, Figure 6 of Olson shows that the boundary region is an area defined with respect to a connecting plane between the antenna element and the transmission line so as to avoid occurrence of resonance at an operating frequency of the antenna.

Regarding claim 3, as applied to claim 1, Olson (Figure 1 and col 4 line 19) teaches that at least a surface area of the antenna element is made of a conductive material, and the antenna element has a gap formed in the conductive material and extending in the radial direction from a center of the antenna element.

Regarding claim 13, as applied to claim 1, Olson (col 4, lines 36-39) teaches that the transmission line is a coaxial cable.

Regarding claim 14, the antenna structure of Olson would enable the method for controlling directivity of an antenna comprising the steps as claimed.

Allowable Subject Matter

3. Claims 4-12 and 15-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, Olson fails to specifically teach, among other features, that the electric field adjusting structure includes an electrical switch for changing electric field distribution of the transmission line.

Claims 5-12 would have been found allowable for depending on claim 4.

Regarding claim 15, Olson fails to further teach, among other features, the steps of providing a plurality of switches in the boundary region; and causing a short-circuit between a center conductor and an outer conductor that form the transmission line using at least one of the switches at a predetermined position around the antenna element to turn the electric field distribution to a direction opposite to the short-circuited position.

Regarding claim 16, Olson fails to further teach, among other features, the steps of providing a plurality of floating conductor strips between a center conductor and an outer conductor that form the transmission line; providing a plurality of switches in the boundary

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region; and causing a short-circuit between a center conductor and an outer conductor that form the transmission line using at least one of the switches at a predetermined position around the antenna element to turn the electric field distribution to a direction opposite to the short-circuited position.

Claims 17 and 18 would have been found allowable for depending on claim 16.

Regarding claim 19, Olson fails to further teach, among other features, the steps of arranging a plurality of electrodes at predetermined intervals around the center conductor of the transmission line; and applying a voltage across at least one of the electrode and the center conductor to change a permittivity of selected portion of a dielectric material filling a space between the center conductor and the outer conductor in order to turn the electric field distribution to the desired direction.

Claims 20 and 21 would have been found allowable for depending on claim 19.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patent 5,796,369 discloses a high efficiency compact antenna comprising a switch provided in a boundary region between an antenna element and a transmission line.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V. Nguyen whose telephone number is (571) 272-1825.

The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoang Nguyen can be reached on (571) 272-1825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hvn
5/4/05



HOANG V. NGUYEN
PRIMARY EXAMINER